

BLEEDING DISORDERS

LCDR ART GEORGE

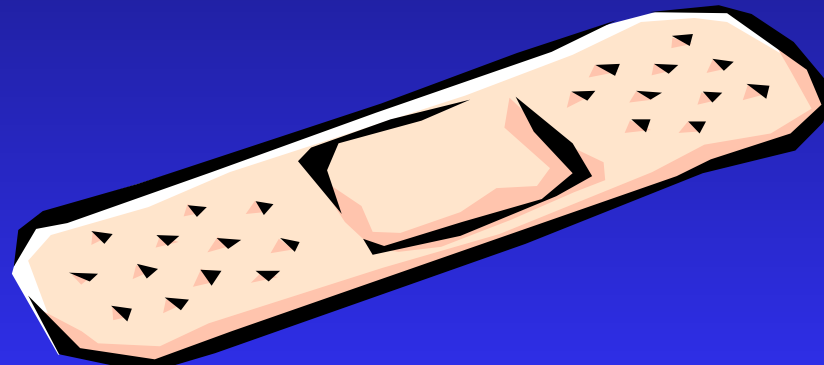


HEMOSTASIS

1. **VASCULAR PHASE**
2. **PLATELET PHASE**
3. **COAGULATION PHASE**
4. **FIBRINOLYTIC PHASE**

VASCULAR PHASE

WHEN A BLOOD VESSEL IS
DAMAGED, VASOCONSTRICTION
RESULTS.

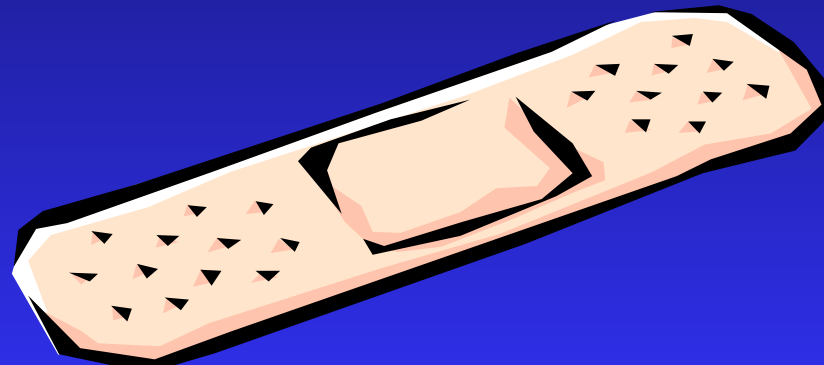


HEMOSTASIS

- 1. VASCULAR PHASE**
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PLATELET PHASE

PLATELETS ADHERE TO THE
DAMAGED SURFACE AND FORM A
TEMPORARY PLUG.

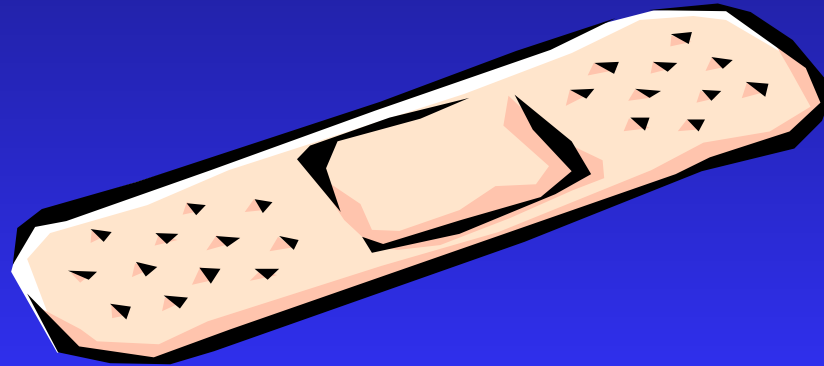


HEMOSTASIS

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COAGULATION PHASE

THROUGH TWO SEPARATE
PATHWAYS THE CONVERSION OF
FIBRINOGEN TO FIBRIN IS
COMPLETE.

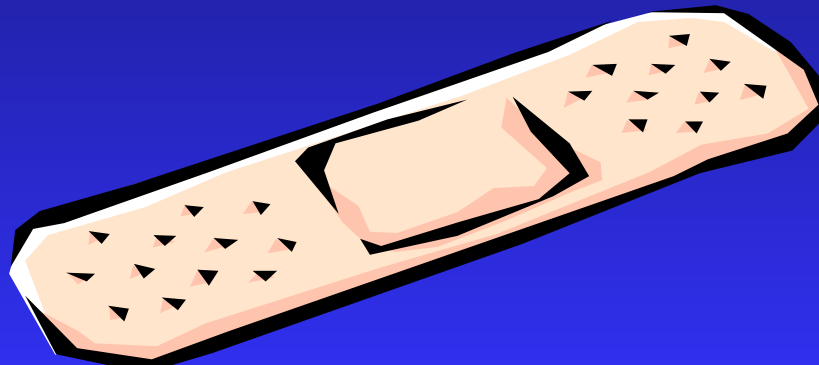


HEMOSTASIS

- 1. VASCULAR PHASE**
- 2. PLATELET PHASE**
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- 4. FIBRINOLYTIC PHASE**

FIBRINOLYTIC PHASE

ANTICLOTING MECHANISMS ARE
ACTIVATED TO ALLOW CLOT
DISINTEGRATION AND REPAIR OF
THE DAMAGED VESSEL.

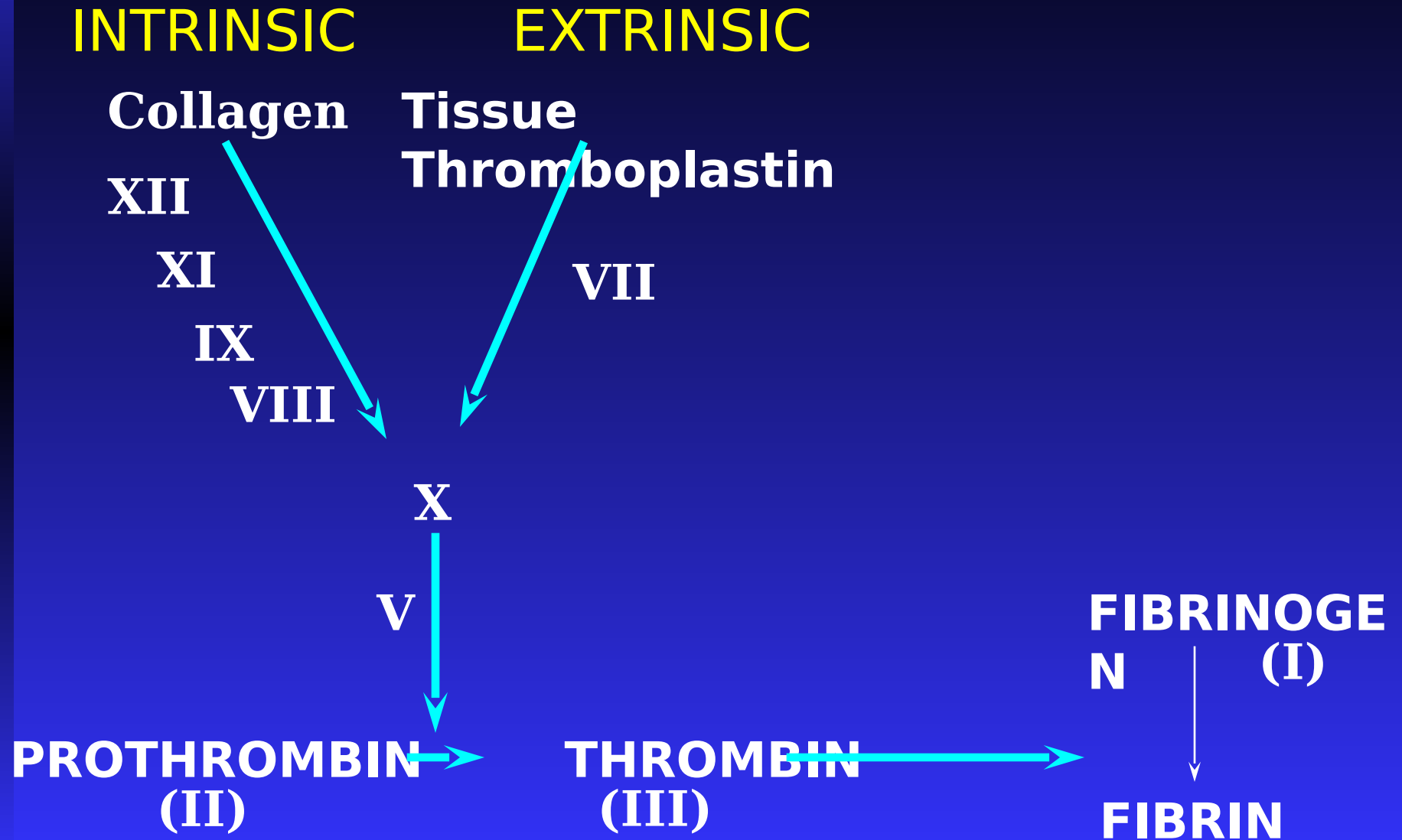


HEMOSTASIS

DEPENDENT UPON:

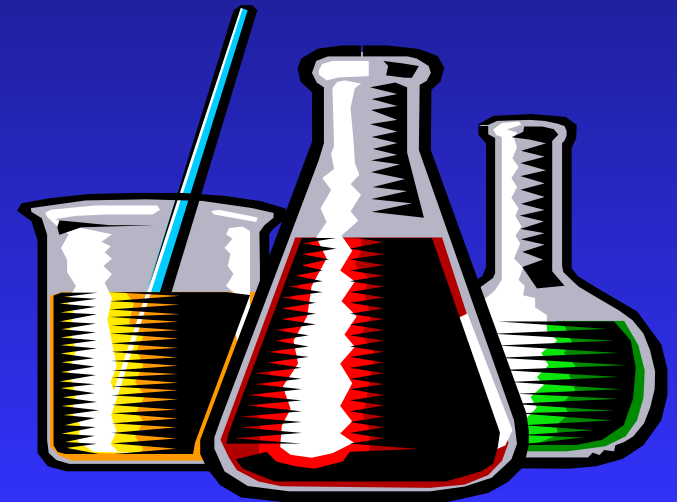
- ① Vessel Wall Integrity
- ② Adequate Numbers of Platelets
- ③ Proper Functioning Platelets
- ④ Adequate Levels of Clotting Factors
- ⑤ Proper Function of Fibrinolytic Pathway

THE CLOTTING MECHANISM



LABORATORY EVALUATION

- PLATELET COUNT
- BLEEDING TIME (BT)
- PROTHROMBIN TIME (PT)
- PARTIAL THROMBOPLASTIN TIME (PTT)
- THROMBIN TIME (TT)



PLATELET COUNT

□ NORMAL 100,000 - 400,000
CELLS/MM³

< 100,000 Thrombocytopenia

50,000 - 100,000 Mild Thrombocytopenia

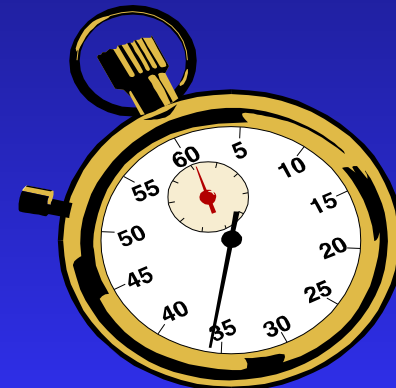
< 50,000 Sev Thrombocytopenia

BLEEDING TIME

- PROVIDES ASSESSMENT OF PLATELET COUNT AND FUNCTION

NORMAL VALUE

2-8 MINUTES

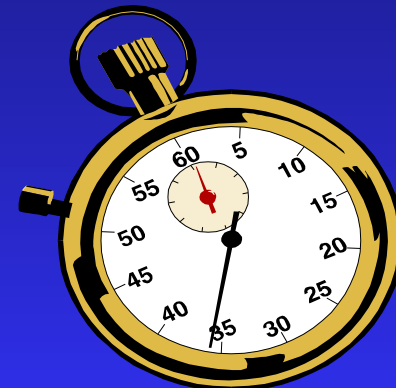


PROTHROMBIN TIME

- Measures Effectiveness of the Extrinsic Pathway
- Mnemonic - PET

NORMAL VALUE

10-15 SECS



PARTIAL THROMBOPLASTIN TIME

- Measures Effectiveness of the Intrinsic Pathway
- Mnemonic - PITT

NORMAL VALUE

25-40 SECS



THROMBIN TIME

- Time for Thrombin To Convert Fibrinogen → Fibrin
- A Measure of Fibrinolytic Pathway

NORMAL VALUE

9-13 SECS



So What Causes Bleeding Disorders?

- ❑ **VESSEL DEFECTS**
- ❑ PLATELET DISORDERS
- ❑ FACTOR DEFICIENCIES
- ❑ OTHER DISORDERS



VESSEL DEFECTS

- ❑ VITAMIN C DEFICIENCY
- ❑ BACTERIAL & VIRAL INFECTIONS
- ❑ ACQUIRED

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PLATELET DISORDERS

- ▣ THROMBOCYTOPENIA
- ▣ THROMBOCYTOPATHY

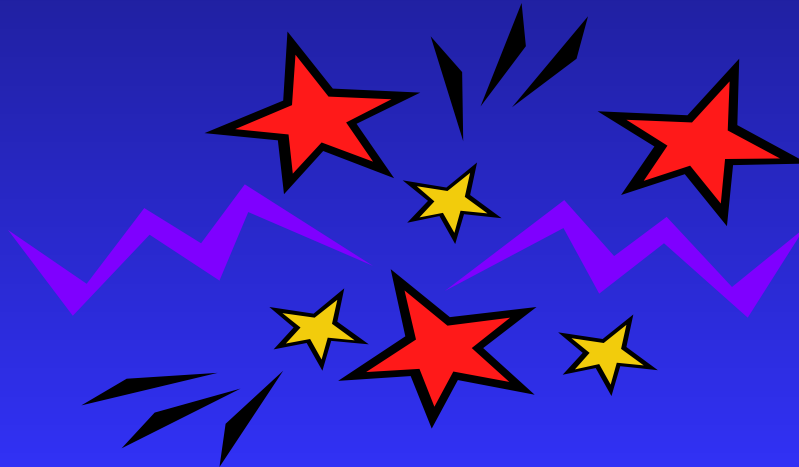
THROMBOCYTOPENIA

INADEQUATE NUMBER
OF PLATELETS



THROMBOCYTOPATHY

ADEQUATE NUMBER BUT
ABNORMAL FUNCTION



THROMBOCYTOPENIA

- DRUG INDUCED
- BONE MARROW FAILURE
- HYPERSPLENISM
- OTHER CAUSES

THROMBOCYTOPENIA

- DRUG INDUCED



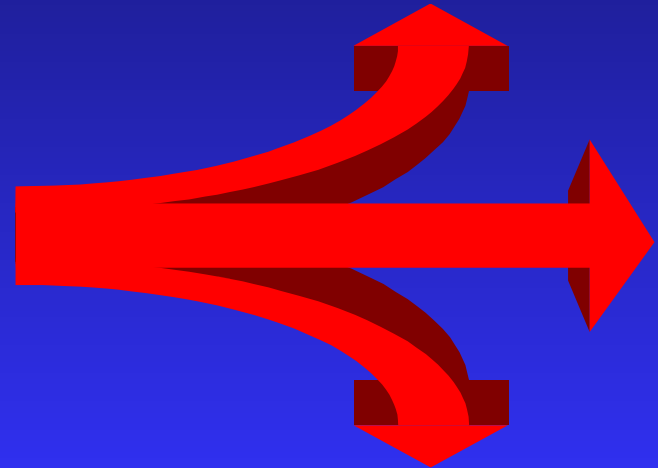
Alcohol

**Thiazide
Diuretics**



THROMBOCYTOPENIA

- DRUG INDUCED
- BONE MARROW FAILURE
- HYPERSPLENISM
- OTHER CAUSES



THROMBOCYTOPENIA

- BONE MARROW FAILURE

- ✦ Viral Infections

- ▢ Nutritional Deficiencies

- ▢ Chemotherapy & Radiation Therapy

- ▢ Infiltration of Abnormal Cells

- ▢ Aplastic Anemia

- ▢ Leukemia

- ▢ Metastatic Cancer

THROMBOCYTOPENIA

- DRUG INDUCED
- BONE MARROW FAILURE
- HYPERSPLENISM
- OTHER CAUSES

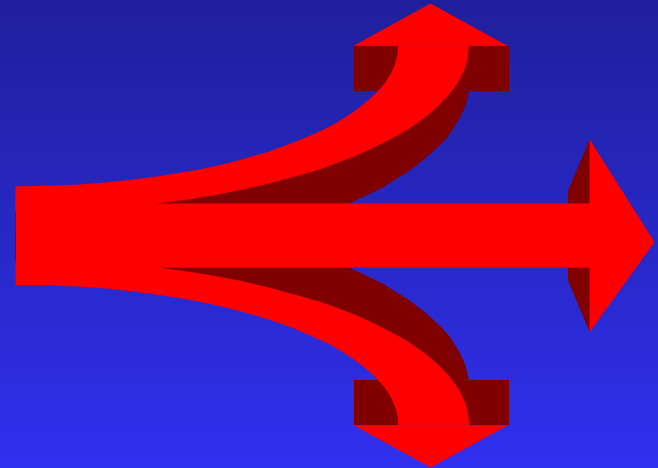
THROMBOCYTOPENIA

- HYPERSPLENISM

- ✦ Increase in Size Leads to Destruction of Platelets
- ▮ Associated with Portal Hypertension Seen in Patients with Cirrhosis

THROMBOCYTOPENIA

- DRUG INDUCED
- BONE MARROW FAILURE
- HYPERSPLENISM
- OTHER CAUSES



THROMBOCYTOPENIA

● OTHER CAUSES

- Lymphoma
- HIV Virus
- Idiopathic Thrombocytopenia Purpura (ITP)

THROMBOCYTOPATHY

- UREMIA
- INHERITED DISORDERS
- MYELOPROLIFERATIVE DISORDERS
- DRUG INDUCED

THROMBOCYTOPATHY

- DRUG INDUCED

ASPIRIN.



IRREVERSIBLY BINDS TO THE
PLATELET FOR ITS ENTIRE LIFESPAN
(7-10 DAYS)

THROMBOCYTOPATHY

- DRUG INDUCED

NSAIDS



REVERSIBLY BINDS TO THE PLATELET
FOR A LIMITED TIME PERIOD
(APPROX 6 HOURS)

So What Causes Bleeding Disorders?

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- ❑ **FACTOR DEFICIENCIES**
- ❑ OTHER DISORDERS



FACTOR DEFICIENCIES

(CONGENITAL)

- HEMOPHILIA A

- HEMOPHILIA B

- VON WILLEBRAND'S DISEASE

FACTOR DEFICIENCIES

- HEMOPHILIA A (Classic Hemophilia)
 - ▮ 80-85% of all Hemophiliacs
 - ▮ Deficiency of Factor VIII
 - ▮ Lab Results - Prolonged PTT
- HEMOPHILIA B (Christmas Disease)
 - ▮ 10-15% of all Hemophiliacs
 - ▮ Deficiency of Factor IX
 - ▮ Lab Test - Prolonged PTT

FACTOR DEFICIENCIES

- VON WILLEBRAND'S DISEASE

- ▢ Deficiency of VWF & amount of Factor VIII
- ▢ Lab Results - Prolonged BT, PTT

So What Causes Bleeding Disorders?

- VESSEL DEFECTS
- PLATELET DISORDERS
- **FACTOR DEFICIENCIES**
- OTHER DISORDERS



OTHER DISORDERS

(ACQUIRED)

- ❑ ORAL ANTICOAGULANTS
 - ◆ COUMARIN
 - ◆ HEPARIN
- ❑ LIVER DISEASE
- ❑ MALABSORPTION
- ❑ BROAD-SPECTRUM ANTIBIOTICS

OTHER DISORDERS

- ORAL ANTICOAGULANTS

Coumarin Prevents Thromboembolic Events &

is a Vit K Antagonist. Monitored by **PT** times.

Heparin Therapy is Monitored by **PTT** times.

OTHER DISORDERS

● MALABSORPTION

- ▮ Various Intestinal Diseases Will Interfere w/ Bile Acid Metabolism.
- ▮ Bile Acids are Required for Vit K Absorption so You Will See a Deficiency in Vit K Dependent Coagulation Factors (II,VII,IX,X).

OTHER DISORDERS

▮ LIVER DISEASE

- ▮ Jaundice Results in Malabsorption of Vit K.
- ▮ Liver Disease can Result in Reduced Production of Coagulation Factors **(I,II,V,VII,IX,X).**

OTHER DISORDERS

- BROAD-SPECTRUM ANTIBIOTICS

- ✦ Change in Intestinal Flora which Might Decrease Vitamin K Production.

- ▢ Vitamin K is Necessary for the Liver to Produce Coagulation Factors II,VII,IX,X.

DENTAL EVALUATION

- GOOD THOROUGH MEDICAL HISTORY
- A PHYSICAL EXAMINATION
- SCREENING CLINICAL LAB TESTS
- EXCESSIVE BLEEDING FOLLOWING SURGICAL PROCEDURE

GOOD THOROUGH HISTORY

- Family HX
- Personal HX
- Medications
- Past & Present Illness
- Spontaneous Bleeding



REVIEW PATIENT'S MEDS

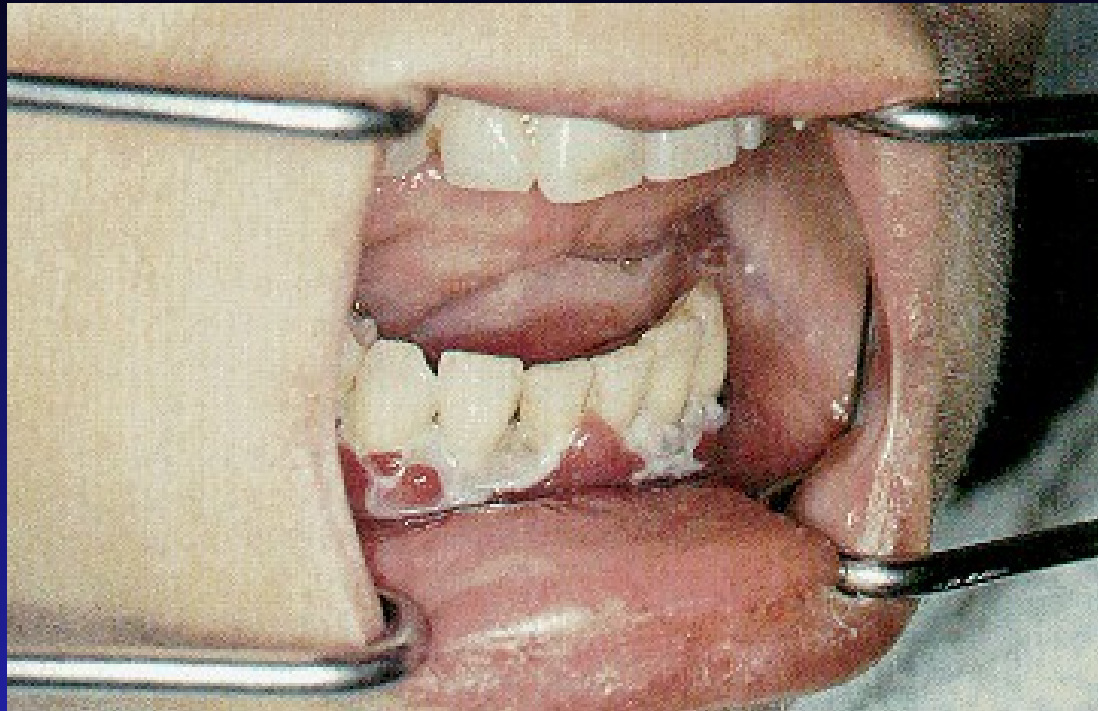
FIVE DRUGS THAT INTERFERE WITH HEMOSTASIS

- ASPIRIN
- ANTICOAGULANTS
- ANTIBIOTICS
- ALCOHOL
- ANTICANCER



ORAL MANIFESTATIONS

- Petechiae & Ecchymosis
- Gingival Hyperplasia
- Spontaneous Gingival Bleeding
- Ulceration of Oral Mucosa
- Lymphadenopathy



LEUKEMIA

DENTAL PATIENTS

- LOW RISK

- ✦ Patients with No Hx of Bleeding Disorders
- ▢ Normal Laboratory Results

- MODERATE RISK

- ✦ Patients on Chronic Oral Anticoagulant Therapy. PT is 1.5 - 2 Times Control Range

DENTAL PATIENTS

- HIGH RISK

- ▮ Patients with Known Bleeding Disorders
- ▮ Patients without Known Bleeding Disorders Who Have Abnormal Laboratory Results



DENTAL MANAGEMENT

- LOW RISK PATIENTS
 - ▮ Normal Protocol
- MODERATE RISK PATIENTS
 - ▮ Anticoagulants - Consult Physician
 - ▮ Aspirin Therapy - BT, Consult Physician

DENTAL MANAGEMENT

- HIGH RISK PATIENTS

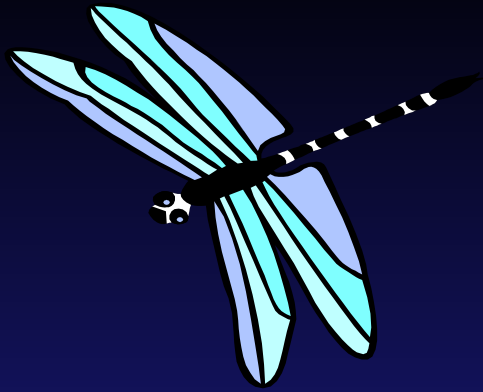
- Close Coordination with Physician
- Hospitalization (Platelet Transfusion)

Replacem



(Factor

(Vit K Therapy)
(Dialysis)



ANY QUESTIONS?

